Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Office of Secretary Of Defense

R-1 ITEM NOMENCLATURE

0400: Research, Development, Test & Evaluation, Defense-Wide

PE 0603699D8Z: Emerging Capabilities Technology Development

DATE: February 2012

BA 3: Advanced Technology Development (ATD)

APPROPRIATION/BUDGET ACTIVITY

COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
Total Program Element	-	26.160	24.662	-	24.662	24.675	25.116	23.399	23.826	Continuing	Continuing
P795: Emerging Capabilities Technology Development	-	26.160	24.662	-	24.662	24.675	25.116	23.399	23.826	Continuing	Continuing

A. Mission Description and Budget Item Justification

This funding develops emerging capabilities in support of near and mid-term irregular warfare needs guided by the framework Secretary of Defense (SECDEF), under Secretary of Defense (USD) Acquisition Technology and Logistics (AT&L), Assistant Secretary of Defense (ASD) Research and Engineering (R&E), of Deputy Assistant Secretary of Defense (DASD) Rapid Fielding (RF) and Rapid Reaction Technology Office (RRTO) objectives and focus areas. With an emphasis on interagency and Service partnerships, initiatives are developed to pursue risk-reducing prototypes and demonstrations in order to produce capability options that anticipate and inform formal joint and interagency requirements and acquisition processes. Individual projects generally span a two to three year period and are demonstrated and fielded in spirals within that project timeline. In addition, during FY 2012 and FY 2013 the office will expand a maritime portfolio focused on irregular warfare capabilities in that domain as a complement to the existing maritime technology demonstrator and ground and Inteligence, Surveillance, and Reconnaissance (ISR) portfolios. This Program Element has evolved from exclusive support of force transformation activities to the activities described above, which are more closely aligned with departmental goals.

B. Program Change Summary (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total
Previous President's Budget	-	26.972	32.298	-	32.298
Current President's Budget	-	26.160	24.662	-	24.662
Total Adjustments	-	-0.812	-7.636	-	-7.636
 Congressional General Reductions 	-	-			
 Congressional Directed Reductions 	-	-			
 Congressional Rescissions 	-	-			
 Congressional Adds 	-	-			
 Congressional Directed Transfers 	-	-			
Reprogrammings	-	-			
SBIR/STTR Transfer	-	-0.632			
Baseline Adjustments	-	-	-7.636	-	-7.636
• FFRDC	-	-0.180	-	-	-

Change Summary Explanation

Baseline Review. A zero-based review to align resources to the most critical priorities and eliminate lower priority functions.

Exhibit R-2A, RDT&E Project Justification: PB 2013 Office of Secretary Of Defense							DATE: Febr	uary 2012			
0400: Research, Development, Test	PROPRIATION/BUDGET ACTIVITY 00: Research, Development, Test & Evaluation, Defense-Wide 3: Advanced Technology Development (ATD) R-1 ITEM NOMENCLATURE PE 0603699D8Z: Emerging Capabilities Technology Development PROJECT PP 0603699D8Z: Emerging Capabilities Technology Development Development						PE 0603699D8Z: Emerging Capabilities				ology
COST (\$ in Millions)	FY 2011	FY 2012	FY 2013 Base	FY 2013 OCO	FY 2013 Total	FY 2014	FY 2015	FY 2016	FY 2017	Cost To Complete	Total Cost
P795: Emerging Capabilities Technology Development	-	26.160	24.662	-	24.662	24.675	25.116	23.399	23.826	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element is a new start in FY 2012 and reflects a transition from 0605799D8Z to 0603699D8Z in FY 2012.

This funding develops emerging capabilities in support of near and mid-term irregular warfare needs guided by the framework Secretary of Defense (SECDEF), under Secretary of Defense (USD) Acquisition Technology and Logistics (AT&L), Assistant Secretary of Defense (ASD) Research and Engineering (R&E), of Deputy Assistant Secretary of Defense (DASD) Rapid Fielding (RF) and Rapid Reaction Technology Office (RRTO) objectives and focus areas. With an emphasis on interagency and Service partnerships, initiatives are developed to pursue risk-reducing prototypes and demonstrations in order to produce capability options that anticipate and inform formal joint and interagency requirements and acquisition processes. Individual projects generally span a two to three year period and are demonstrated and fielded in spirals within that project timeline. In addition, during FY 2012 and FY 2013 the office will expand a maritime portfolio focused on irregular warfare capabilities in that domain as a complement to the existing maritime technology demonstrator and ground and Inteligence, Surveillance, and Reconnaissance (ISR) portfolios. This Program Element has evolved from exclusive support of force transformation activities to the activities described above, which are more closely aligned with departmental goals.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2011	FY 2012	FY 2013
Title: Overwatch	-	4.380	5.026
Description: Overwatch is an overarching ground capability development effort which seeks to leverage technology and new concepts to fill ground combat and interagency capability gaps. It contains multiple initiatives seeking to cultivate and leverage emerging technologies and concepts to counter the current and future challenges characteristic of the irregular warfare environment. Projects are oriented toward increasing war fighter effectiveness on the battlefield and/or the development/ enhancement of "whole of government" irregular warfare capability.			
The capability development effort furthers interagency capabilities by pursuing concept experimentation/validation, interoperability enhancements, and command and control development. Ground capabilities focus on command and control, force protection, situational awareness, and networked, cooperative engagement. These solutions include completed operational assessments, equipment prototypes, or validated concepts which can be used to inform and drive formal procurement processes and/or policy decisions.			
FY 2012 Plans: Project Overwatch will continue with ten active subordinate projects: the Enhanced Mortar Targeting System; Campaign Planning and Assessment Requirements/Identifying Human and Technological Resource Requirements; Forward Operating Base Defense			

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Exhibit R-2A, RDT&E Project Justification: PB 2013 Office of Secr	retary Of Defense		DATE: Fe	bruary 2012	
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603699D8Z: Emerging Capabilities Technology Development	PROJEC P795: En Developr	nerging Capa	bilities Techn	ology
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2011	FY 2012	FY 2013
Integrated Protection Initiative; Off-the-shelf Guided Munitions; Walki Humanitarian Assistance/Disaster Relief efforts; Spectral Manageme NextTECH; and, Intelligent Small Unit Power (ISUP) efforts to reduce NextTECH and ISUP are new efforts for FY 2012. The Spectral Man of U.S. equipment in the field to reduce vulnerability to emerging sen areas that are likely to disrupt traditional military production or signific effects traditionally associated with national forces. The Intelligent Sequipment to reduce fuel dependencies and usage at the lowest tactiby Deputy Assistant Secretary of Defense (DASD) Rapid Fielding (Rand focus areas.	ent efforts for equipment; Building Effective Institute small unit fuel consumption. Spectral Managem agement effort will produce coatings to reduce the sor modalities. NextTECH will identify emerging to cantly enhance the ability of non-state actors to premall Unit Power initiative will look at modifying exical level. Additional projects will be developed an	ions; ent efforts, e signature echnology oduce sting ad informed			
FY 2013 Plans: In FY 2013, the Enhance Mortar Targeting System; Spectral Manage (ISUP) efforts to reduce small unit fuel consumption; and Off-the-She New projects for FY 2013 will include: Tactical Counter Mortar and E Counter Mortar project will develop a wheeled-vehicle class counter Understanding will explore how social media and emerging network to The project will develop tools at the tactical level to understand the projects will be developed and informed by DASD (RF) and RRTO of	elf Guided Munitions projects will continue develop lectromagnetic Environmental Understanding. The mortar/rocket capability. Electromagnetic Environ technologies can be identified and exploited by a stormal or baseline electromagnetic environment. A	ment. e Tactical mental actical unit.			
Title: Maritime Irregular Warfare/Stiletto			-	2.805	8.025
Description: As a complement to the Stiletto dedicated maritime der investigates and develops irregular warfare capability gaps in the ma highlighted a significant gap in maritime capability against non-tradition maritime demonstration platform designed to assist in the rapid trans operations to higher Technology Readiness Levels. The 88-foot long to explore the scalability of non-mechanical dynamic lift, composite comilitary operations. The craft was purposefully designed to rapidly acmilitary utility of emerging technologies and concepts of operation for systems were designed to be flexible, modular, and re-configurable to used as part of experimentation.	ritime domain. Recent projects conducted by RR onal challenges, which this portfolio addresses. So ition of technologies applicable across the range of boat is an experimental, all carbon fiber craft originarbon fiber construction, and high-speed performance of the construction of the capabilities to expression and expeditionary forces. Both the craft is	TO have tiletto is a of military ginally built ance for blore the and its			
The Stiletto program, managed in partnership with the Naval Surface Air Warfare Center Aircraft Division's Warfare Innovation Cell, stream					

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2011	FY 2012	FY 2013
rapid demonstration, exploration, and risk reduction of emerging tech process for experimentation is intended to provide low cost access for and prove their systems in a realistic maritime environment. The dent to engage directly with the warfighter in the maritime environment to Stiletto vessel is homeported in Norfolk, Virginia.	or industry, government and academic organization monstration process also encourages system deve	ns to install lopers			
FY 2012 Plans: The Maritime Irregular Warfare Portfolio explores the development of submersible vehicles and swarms, countering unmanned swarms, may support, among other capabilities. Within that context, NAUTICUS is materials such as explosives or illegal drugs being transported by may as a maritime demonstration platform. Increase in funding reflects the capability development portfolio. For Stiletto, the intent is to expand that have not worked with DoD to utilize Stiletto as a low cost, access Priority will be given to demonstrations that directly assist an acquisities evaluating unmanned systems capabilities; sensors; launch and reconstructions are control warrior operational experiment in FY 2012 as a "control ship" opportunities will be sought to assist the Combatant Commands (CO in demonstrating state-of-the-art capabilities in anticipation of future reconstructions.	aritime non-lethal weapons systems, and low cost is a new FY 2012 effort to non-invasively identify coaritime vessels underway. Stiletto will continue to see development of the maritime domain irregular with the number of opportunities for non-traditional busesible demonstration venue to enter the defense supplied program. Specific focus for demonstrations with program. Specific focus for demonstrations with program and human factors. Stiletto plans to participe for multiple unmanned autonomous vessels. Additional communities and services in experiments and exercises	littoral fire ntraband erve arfare inesses oport realm. Il be on ate in the litional			
FY 2013 Plans: Further development of the Maritime Irregular Warfare Portfolio is plate counter evolved non-state capabilities such as semi and fully submer maritime non-lethal weapons systems, and low cost littoral fire support on partnerships with Navy, U.S. Coast Guard, Army Watercraft Systems, Stiletto will continue to serve as a maritime demonstration platform. It domain irregular warfare capability development portfolio. For Stiletto traditional businesses that have not worked with DoD to utilize Stiletto defense support realm. Priority will be given to demonstrations that the technology transition. Specific focus for demonstrations will be on evand recovery; and human factors. Stiletto plans to pursue participation. Trident Warrior and Trident Spectre, as well as hosting capability devenuel.	rsible vehicles and swarms, countering unmanned ort, among other capabilities. In FY 2013, projects ems, SOCOM, SOUTHCOM, and other operational Increase in funding reflects the growth of the marit o, the intent is to expand the number of opportunition as a low cost, accessible demonstration venue to directly assist an acquisition program, with specific valuating unmanned systems capabilities; sensors on in planned operational experiments in FY 2013 velopment exercises with operational commands s	swarms, will focus users. ime es for non- center the focus on launch such as			
Title: Hybrid Airship	·		-	12.000	6.000

Exhibit R-2A, RDT&E Project Justification: PB 2013 Office of Secr	retary Of Defense		DATE: Fe	bruary 2012	
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJEC	Т		
0400: Research, Development, Test & Evaluation, Defense-Wide BA 3: Advanced Technology Development (ATD) PE 0603699D8Z: Emerging Capabilities Technology Development Development			Emerging Capabilities Technology opment		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2011	FY 2012	FY 2013
Description: In conjunction with the NASA-Ames Research Center the Command (USTRANSCOM), the Department has undertaken a hybrid demonstrator that integrates independent technologies into a single, in The project will demonstrate the technical maturity of a scalable vertical demonstrated include a buoyancy management system to enable ball external structure to reduce environmental restrictions, a responsive langorithms, and a ground handling subsystem to enable operations of	rid airship project which is a non-deployable techring rigid aeroshell variable buoyancy (RAVB) air vehical takeoff and landing aircraft. Key technologies llast-independent operations, composite lightweig low-speed/hover control system with associated of	ology cle. to be ht rigid			
The program objective is to mitigate long-term technical risk by integrative potential to reduce operational constraints on future heavy-lift, but prototype will enable the rapid development of a nascent class of air mile of airlift operations, permit high-payload operations directly into a long-endurance manned or unmanned air operations.	loyant-aircraft development programs. If successful vehicle which will radically reduce the energy use	ul, the per ton-			
RAVB aircraft appear to be potentially scalable to payloads of 500-1, for the largest current U.S. cargo aircraft). With cruise speeds of 80-1 the speed of fast sealift. With the potential to operate from land or wardrastically reduce the need for intermodal transportation as cargo mo in delivery times.	100 knots, RAVB aircraft could surpass by severa ater with very little infrastructure, RAVB aircraft materials.	l times ay also			
Using a two step process, the project has been reduced to a four year Secretary of Defense (ASD) Research and Engineering (R&E) provid FY 2011 \$14.000 million) to fund acceleration of the actions needed for vehicle design, analysis, and subsystem prototyping/testing. Step two funding (\$5.000 million) into FY 2012 to fund systems integration and an interagency effort between the Department of Defense, the Nation Center, and the USAF Research Laboratory.	ding an additional \$6.000 million to the program (n for early completion. These actions consisted of f to of this process was to roll some of the requested construction plus ground and flight testing. This	ew total inalizing d FY 2013 project is			
FY 2012 Plans: The funding increase in FY 2012 was for the acceleration and technic the project will evolve from its current technical demonstrator approach					

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2011	FY 2012	FY 2013
Additional FY 2012 actions include completion of integrated subsyste Review of the air vehicle prior to full hangar tethered flight testing and		adiness			
FY 2013 Plans: In FY 2013, U.S. Transportation Command will have assumed oversi will support the development of follow-on demonstrations and capabi	•	. Funding			
Title: Thunderstorm			-	4.273	4.261
Description: Thunderstorm is an enduring multi-Intelligence technology of Defense, interagency partners, Combatant Commanders, Services vendors. It provides participating partners with an opportunity to evaluate Intelligence, Surveillance, and Reconaissance (ISR) technologies and and dissemination (PED) capabilities prior to full-scale operational en intelligence technology demonstration opportunities per year can be operationally relevant areas where the effectiveness of offensive and emerging technologies and transformational concepts can be tested international, commercial and academic partners can demonstrate not tracking and handoff ISR technologies in real-world and simulated so themselves to developing enduring interagency ISR information shart and developing scenarios, using multi-Intelligence engagement, which exploitation and dissemination (PED) requirements to advance remote Using Thunderstorm demonstration objectives, performance measure and data evaluation, ISR operational and architectural improvements	s, academia, government laboratories and comme luate and assess the capabilities of new and eme d related information collection, processing, exploingly ment. Within this context, as many as four reconducted in mission-related, geographically and defensive capabilities of evolving ISR architectur and evaluated. DoD, other government organizate, legacy and emerging detection, cueing, monit benarios. Thunderstorm technology demonstrationing tactics, techniques, procedures and collaborated minimize in-theater or on-site information proceste PED capabilities for the DoD and interagency pes, lessons learned, and post-demonstration assets.	ercial rging itation, nulti- es, ions, oring, ns lend tion tools ssing, eartners.			
FY 2012 Plans: In FY 2012, funding supports the planning and execution of the Thun of this summer 2012 spiral in the Rio Grande Valley Customs and Boundard involvement as well as Joint Task Force North (JTF-N) and Joint Inte The Rio Grande Valley was chosen for this spiral because it offers m sea and littoral scenarios. These scenarios serve to challenge ISR a weakness in each.	order Protection (CBP) Sector will leverage DHS/Cer-Agency Task Force-South (JIATF-S) in supporticulti-Intelligence demonstration opportunities again	CBP ng roles. nst land, air,			
In the Spring of FY 2012, a related, but less complex Intelligence, Su demonstration called Bluegrass will take place. The objective of the					

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2011	FY 2012	FY 2013
sets using ISR/wide-area motion imagery sensors tracking designate information to develop and improve urban/suburban wide-area motion					
FY 2013 Plans: In early FY 2013, planning will begin for subsequent Thunderstorm S Spiral 5.0 demonstration objectives, performance measures, lessons evaluation, detailed plans will be developed to complement current of to the Rio Grande Valley to employ lessons learned in FY 2012 and in complex scenarios to improve sensor capabilities, data integration, and the of the FY 2013 Plans record descent at the condition of the FY 2013 Plans record descent at the condition of the cond	learned, and post-demonstration assessments are perational challenges. Thunderstorm Spiral 5.1 was moreove the tactics, techniques and procedures us and processing, exploitation, and dissemination ca	nd data ill return sing more			
Results of the FY 2012 Bluegrass demonstration will be used to dete Title: Emerging Space Capabilities	rmine follow-on activities for this effort.			2.200	1.000
Description: This new portfolio will apply the RRTO business model investments to complement Air Force and National Reconnaissance objective to preserve the space environment. Projects will be synchrous to pursue research and development of technologies and techniques and increase understanding of the current and future debris environment the private sector to develop new and emerging space technology; and development and launch in order to quickly respond to changes in the	Office initiatives in pursuit of the National Space Sonized with other ongoing interagency efforts and to mitigate and remove on-orbit debris, reduce hatent. This project also seeks to develop partnershad explore non-traditional approaches to rapid sat	Strategy seek azards, nips with			
In addition, during FY 2013 the office will focus the space portfolio on portfolios.	new space capabilities that complement existing	ISR			
FY 2012 Plans: In FY 2012, this project purses the development of unique emerging support needs guided by the National Security Space Strategy to pre and service partnerships, initiatives will seek risk-reducing technology	serve the space arena. With an emphasis on inte	ragency			
FY 2013 Plans: In FY 2013, projects focused on orbital debris mitigation and preserva will be initiated to develop partnerships with commercial entities that a goal of recognizing and mitigating technological surprise and improving dissemination capabilities.	develops new and emerging space technology wi	th the			
Title: Science and Technology Support to Information Operations			-	0.502	0.350

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B. Accomplishments/Planned Programs (\$ in Millions)			FY 2011	FY 2012	FY 2013
Description: This new portfolio will apply the RRTO business model investments to complement DoD, State Department, and Department Operations, Strategic Communication, and Public Diplomacy. Project capabilities that support the National Counterterrorism Strategy and by developing measures of effectiveness, social media analysis, and needs will be coordinated through the Director for Information Operar Policy, Special Operations and Low Intensity Conflict (SO/LIC). FY 2012 Plans: In FY 2012, the office will develop the portfolio by updating its previor and technology for strategic communication, broadening the field to it existing and needed technical capabilities to respond in a systemic, rebeing used to undermine our military and security efforts. It will also narratives in the information environment. The update will identify granallytical tools, production, content delivery, research, planning, train projects will be funded in FY 2012 to support Information Operations State Department's Center for Strategic Counterterrorism Communic S&T and Human Factors programs. Specific emphasis will be placed by the National Security Staff.	at of Homeland Security initiatives in the areas of I cets of particular interest include efforts to fill gaps the Countering Violent Extremism (CVE) Abroad I counter-narrative capabilities. Specific support to tions in the Office of the Under Secretary of Deferming and Extremism (CVE) Abroad I counter-narrative capabilities. Specific support to tions in the Office of the Under Secretary of Deferming and Extremited Include information operations. The update will for apid, sustained and measurable way to adversar look at technologies to rapidly analyze and responses in seven areas to guide future project developing, and evaluation tools. Utilizing this gap analytications, USAID, and the Department of Homeland	nformation in tools and Framework o COCOM nse for ent's science icus on ial narratives nd to those oments: ysis, several COCOMs, Security's			
FY 2013 Plans: Utilizing the report and gap analysis will complete in FY 2013. Project CVE needs in partnership with SO/LIC, the COCOMs, State Departnus USAID, and the Department of Homeland Security's S&T and Human on capabilities beneficial to the priority countries identified by the Nattechnologies and capabilities in the areas of measurement of effective technologies, and other areas identified through partnerships with other	nent's Center for Strategic Counterterrorism Comin Factors programs. Specific emphasis will be plational Security Staff. Projects will focus on develoyeness, social network analysis, advanced commit	munications, aced pping			

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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26.160

24.662

Accomplishments/Planned Programs Subtotals

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BA 3: Advanced Technology Development (ATD)	Technology Development	Developme	nt

E. Performance Metrics

Project performance metrics are specific to each effort and include measures identified in the specific project plans. In addition, project completions and success are monitored against schedules and deliverables stated in the proposals and statements of work. The metrics include items such as target dates, production measures, fielding dates, and demonstration goals and dates. Generic performance metrics applicable to Emerging Capabilities includes attainment of DoD Strategic Objective 4-2D. The title of this objective is "Speed Technology Transition Focused on Warfighting Needs" and the metrics for this objective is to transition 30% of completing demonstrations program per year. In FY2011, Emerging Capabilities Technology Development had 100% of its completing projects successfully transition.